



# CAA Approved Full Motion Flight Simulation

*Realistic flight simulation requires that the mind be fooled into forgetting what it knows to be true. You're not on the ground strapped into a metal box, but cruising at 6000 feet in unfamiliar airspace and the weather just got very bad.*

FOR SOME time the only certified simulators affordable to general training schools have been limited to visual and audio stimuli. Although offering valuable training experiences, these are one key step removed from the sort of authentic experience that really can trick the mind. That missing step has been motion – an opportunity addressed by USA company, Redbird Flight Simulations.

### Available in New Zealand

Redbird Flight Simulations was founded in 2006 by a team of computer industry executives and engineers from Texas. All are aviation enthusiasts who set themselves the goal of creating a realistic simulator training environment that was within the financial reach of any flying school. Their products are now being operated around the world, including at Cessna pilot centres in the USA.

Ardmore based Executive Flight Services have recently obtained the Redbird Flight Simulations agency for Australasia after owner Mike Foster met with the company when researching flight simulators at Oshkosh.

The Redbird is a first of type for Australasia, arriving with its FAA approval certificate as an Advanced Aviation Training Device just before Christmas. Early in the process Mike spoke with NZCAA who offered support but no promises as to when or what form of NZ certification might be available. Any concerns in that regard proved to be unfounded when in the space of one day, CAA gave approval for all of the training dispensations sought (see sidebar to this article). This gives a good indication as to the quality of operation on offer.

The first training company to use the Redbird is Eagle Flight Training at Ardmore. The simulator is also available to other training organisations and clubs

who, once approved, can take the option of supplying their own instructor.

### Capability and Disorientation

The first thing a pilot is told when beginning instrument training is “trust

wind landing training. Mike says “there’s a lot to be said for motion – the difference in student learning is immediately evident”. Redbird does make fixed as well as motion base simulators, though it is only the full motion base (FMX) version that Mike is now operating from premises within the Dennis Thompson hangar complex at Ardmore.

### Aircraft Options

Redbird have done an excellent job of containing costs in their products, in part by using Microsoft visuals and their own interchangeable instrument panels designed to realistically simulate Garmin and other industry standard avionics.

Aircraft and panel configurations can be swapped in about 5 minutes making a non issue out of having consecutive students training in different aircraft. Three configurations are currently available on the simulator at Ardmore including; Cessna 172 with G1000 panel, Cessna 172 with Garmin 430, 530, ADF, DME and standard instruments, and a Beech Baron with Garmin 430, 530 and auto pilot. On the way is a custom panel to match Eagle Flight Training’s Beechcraft Duchess with Aspen PFD, standard instruments and King GPS.

Other aircraft can be set up for within a leadtime of under 3 months.

### Flight Operations

A clever feature of the simulator is that each pilot has their own key. The key is actually a USB memory stick that contains their flight history, with software that enables this to be re-run on any computer. Administrators can easily manage pilot records and can add missions and scenarios to pilot keys.

Instructors control each simulation via a tablet PC which can be operated from inside or outside the simulator. (In the USA, one instructor might control up to three simulations concurrently). From their controlling PC, the instructor can make changes to the weather, fail aircraft components, and generally make any adjustments they wish in order to enhance



The Redbird FMX Full Motion Simulator at Ardmore. The motion platform is all electric and quite capable of inducing spatial disorientation when asked to.



Inside are six wrap-around monitors. Realistic flight controls and instruments can be easily exchanged for different aircraft and avionics configurations.

the instruments, not your inner ear?”. But telling someone to ignore their senses and training them to do so are not the same. The Redbird simulator provides for smooth and realistic movement that can effectively induce the spatial disorientation necessary to train pilots to fly without references.

The Redbird motion platform is all electric, capable of quietly and smoothly moving through 50 degrees of pitch, 60 degrees of yaw and 40 degrees of roll. Pilot and CoPilot or Instructor sit inside an enclosed ‘cockpit’ with six wraparound monitors dedicated to external views.

The capabilities were more than enough to convince Mike to set up the Redbird operation in New Zealand. Compared to a Frasca or ATC fixed base simulator, the Redbird motion base adds not only the opportunity for spatial disorientation in the air, but also a genuine experience for cross

the training experience.

The simulator is rated for two persons on the inside at any one time so in the case of multi crew flights, the instructor will remain outside and watch the flight from the open door at the back of the simulator.

### Availability and Economics

The simulator is currently available to Eagle Flight Training students at \$140 per hour. Compared to \$490 per hour in the Duchess and \$220 per hour in the 172, buying instrument time in the simulator makes a lot of sense. Mike notes that every hour flown must be supervised by an instructor and must have signoff for the aircraft used and exercises simulated. Other organisations are able to hire the simulator at a flat rate, providing their own instructor and setting their own fees for students.

### For more information

Contact Mike Foster at Executive Flight Services for more information on the Redbird or for a demonstration at Ardmore. Phone (09) 268 6641 or 021 321 417. Email: mike@eftl.co.nz Eagle Flight Training can be contacted on (09) 296 1839.

### Redbird FMX SD 1000 Specific approvals for aeroplane training under Parts 61 and 141

- (a) 2 hours instrument ground time towards issue of PPL
- (b) 5 hours instrument ground time towards issue of CPL
- (c) 5 hours instrument ground time towards issue of Cat C or B Instructor Rating
- (d) 20 hours instrument ground time towards issue of Instrument Rating
- (e) 2 hours instrument ground time towards currency of Instrument Rating
- (f) One GNSS, NDB, VOR, LLZ or ILS approach procedure towards currency of Instrument Rating
- (g) One GNSS, NDB, VOR, LLZ (non-precision) or ILS (precision) approach procedure toward approach currency of Instrument Rating in any one 3 month period
- (h) Conduct of cross country portion and any one approach of every alternate Instrument Rating annual competency demonstration
- (i) Demonstration of Garmin 430/530/1000 GNSS as a subsequent type and model

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## REDBIRD FLIGHT SIMULATION The Full Motion Experience

Now available at Ardmore and approved for use in training pilots under Part 61 and Part 141 for the following purposes:

- Accumulating instrument ground time for Licence or Rating issue.
- Maintaining instrument rating currency.
- Maintaining instrument approach currency.
- Completion of an instrument rating annual competency demonstration.
- Completion of the demonstration required for an additional make and model of GNSS navigation aid.

- This is the most cost effective and realistic flying you can do without leaving the ground.
- Available for hire to Pilots and Flight Training Organisations with approved Instructors.
- Perfect for learning and refining cross wind, short field and mountain flying techniques.
- Panels for Cessna 172 / G1000 or standard, Beech Baron with G430, G530 and auto-pilot.

Contact Mike Foster at Executive Flight Services  
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Executive Flight Services are the Australasian Distributors for Redbird Flight Simulations Inc. Enquiries for simulator purchases are also welcome.

